

## PATENT SPECIFICATION



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539,891

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Complete Specification Accepted: Sept. 26, 1941.

## PROVISIONAL SPECIFICATION

## Improvements in Stoppers for Containers

We, CASCELLOID LIMITED, a British Company, of Britannia Works, Abbey Lane, Leicester, and ALFRED EDWARD PALLET, a British Subject, of the Company's address, do hereby declare the nature of this invention to be as follows:—

This invention relates to stoppers, and has for its object to provide a stopper of a simple, inexpensive but nevertheless effective form for use in connection with tubular or cylindrical containers, bottles, jars and the like, or for stopping holes or orifices in tanks, casks, drums, baths, bowls, sinks and other receptacles.

The stopper constituting the present invention is constructed so as to be a push fit into the mouth of the container, or the hole or orifice to be closed, and to this end comprises a head and a hollow neck or plug which is split or gapped suchwise as to render it radially springy. Consequently, when the stopper is inserted into the mouth, hole or orifice to be closed, it is radially compressed or distorted slightly and by reason of its inherent tendency to resume its normal condition, it fits snugly in and effectively closes the mouth, hole or orifice, but nevertheless can be easily removed.

According to a convenient form of the invention the hollow neck or plug is tapered slightly or bevelled in order to facilitate its insertion into the mouth, hole or orifice to be closed, but, if desired, the stopper may be made with the said neck or plug entirely cylindrical for use in a tapering mouth, hole or orifice.

The hollow neck or plug may be split or gapped in any manner appropriate to the achievement of the desired result, but preferably is split or gapped longitudinally at two or more circumferentially spaced points. When the neck or plug is gapped, the gaps are preferably of a relatively long and narrow form.

Moreover, in a stopper of the improved form for application to a tubular or cylindrical container, bottle, jar or the like, the head is preferably formed with an annular recess around and concentric with the hollow neck or plug to receive the rim of the container, bottle, jar or the like,

so that a neat fit and appearance is engendered. The recess is preferably made of a width to correspond with the thickness of the rim of the container for which the stopper is designed so that a snug fit between the head and the rim is achieved and an air tight or liquid tight closure is obtained.

The head of the stopper may be milled, knurled or otherwise roughened peripherally to facilitate grasping by the thumb and fingers.

According to a particular illustrative embodiment of the invention there is provided a stopper comprising a milled or knurled head and a hollow neck or plug slightly tapered and gapped longitudinally at four circumferentially and equally spaced points so as to divide it into four springy sections. The gaps are of narrow form and extend from the rim of the neck or plug substantially to the juncture of the neck or plug with the head. An annular recess is formed between the periphery of the head and the hollow neck or plug where the latter joins the head. The hollow neck or plug is rounded or counter-sunk interiorly at the inner end.

It is principally the intention to produce the stopper in a relatively small size adapted for use in connection with tubular or cylindrical containers or small bottles of the conventional form now commonly put on the market with supplies of dry goods, such as aspirin and other medicinal or restorative tablets, saccharine tablets, pills, cachous, powders, leads for propelling pencils, and other similar commodities, but is also adapted for use in connection with containers for liquid commodities. Moreover, the stopper may be produced in a larger size suitable for use in connection with bottles, jars and the like, and for stopping holes in other containers or receptacles previously mentioned herein.

Furthermore, it is mainly the intention to manufacture the improved stopper by injection moulding from any appropriate moulding material included within the generic term "plastics" of which there are numerous varieties known in the art. For example, the stopper may be made of

a plastic of the nitro-cellulose, cellulose acetate, phenolic, urea or casein type, known under various trade names, for application to a container made of the same material, glass or metal. Alternatively, the stopper may be made by pressure moulding. If desired, however, the stopper may be made of any other suitable material such as relatively hard indiarubber, vulcanite, ebonite or metal. When the stopper is moulded or cast, as

the case may be, it is preferably made complete with the splits or gaps in the hollow neck or plug, although, as will be readily understood, the splits or gaps may, in some cases, be made by a saw cutting or like machine operation.

Dated this 12th day of November, 1940.

E. N. LEWIS & TAYLOR,  
Chartered Patent Agents,  
Berridge Street Chambers, Leicester,  
Agents for the Applicants.

## COMPLETE SPECIFICATION

### Improvements in Stoppers for Containers

We, CASCELLOID LIMITED, a British Company, of Britannia Works, Abbey Lane, Leicester, and ALFRED EDWARD PALLETT, a British Subject, of the Company's address, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to stoppers, and has for its object to provide a stopper of a simple, inexpensive but nevertheless effective form for use in connection with tubular or cylindrical containers, bottles, jars and the like, or for stopping holes or orifices in tanks, casks, drums, baths, bowls, sinks and other receptacles.

The stopper constituting the present invention comprises a head and a hollow neck or plug, said head being formed with an annular recess around and concentric with the hollow neck or plug and the latter being split or gapped suchwise as to render it radially springy. Consequently, when the stopper is inserted into the mouth, hole or orifice to be closed, it is radially compressed or distorted slightly and by reason of its inherent tendency to resume its normal condition, it fits snugly in and effectively closes the mouth, hole or orifice, but nevertheless can be easily removed.

Conveniently the hollow neck or plug may be tapered slightly or bevelled in order to facilitate its insertion into the mouth, hole or orifice to be closed, but, if desired, the stopper may be made with the said neck or plug entirely cylindrical for use in a tapering mouth, hole or orifice.

The hollow neck or plug may be split or gapped in any manner appropriate to the achievement of the desired result, but preferably is split or gapped longitudinally at two or more circumferentially spaced points. When the neck or plug is gapped, the gaps are preferably of a relatively long and narrow form.

Moreover, in a stopper of the improved form for application to a tubular or cylindrical container, bottle, jar or the like, the aforesaid annular recess receives the rim of the container, bottle, jar or the like, so that a neat fit and appearance is engendered. The recess is preferably made of a width to correspond with the thickness of the rim of the container for which the stopper is designed so that a snug fit between the head and the rim is achieved and an air tight or liquid tight closure is obtained.

The head of the stopper may be milled, knurled or otherwise roughened peripherally to facilitate grasping by the thumb and fingers.

In order that the invention may be more clearly understood and readily carried into practical effect, a specific example thereof embodied in a stopper of a relatively small size adapted for use in connection with a tubular or cylindrical container will now be described with reference to the accompanying drawing, wherein,

Figure 1 is a general perspective view of the stopper and container depicted between the thumb and fingers of a hand to afford an idea as to their size.

Figure 2 is a perspective view, drawn to a somewhat larger scale, of the stopper *per se*,

Figure 3 is an underside plan view of the same.

Figure 4 is a sectional view taken on the line IV—IV of Figure 3, and

Figure 5 is a longitudinal sectional view of the container with the stopper in position in the mouth thereof.

Like parts are designated by similar reference characters throughout the drawing.

As shown more clearly in Figures 2, 3 and 4, the stopper A comprises a milled or knurled head 1 and a hollow neck or plug 2 slightly tapered and gapped longitudinally at four circumferentially and

equally spaced points so as to divide it into four springy sections 3. The gaps 4 are of narrow form and extend from the rim 5 of the neck or plug 2 substantially to the juncture of the latter with the head 1. An annular recess 6 is formed between the periphery of the head 1 and the hollow neck or plug 2 where it joins the head. The hollow neck or plug is rounded as indicated at 7 in Figures 4 and 5 or countersunk interiorly at the inner end.

The mouth of the container B is cylindrical and when the stopper A is inserted into this mouth the four springy sections 3 are simultaneously moved radially inwards slightly, that is to say the neck or plug 2 is radially compressed. By reason of the inherent tendency of the neck or plug to resume its normal condition, however, it fits tightly in and closes the mouth, as hereinbefore explained.

The annular recess 6 is adapted to receive the rim of the container and, as shown in Figure 5, is of a width to correspond with the thickness of said rim.

It is principally the intention to produce the stopper in a relatively small size adapted for use in connection with tubular or cylindrical containers or small bottles of the conventional form now commonly put on the market with supplies of dry goods, such as aspirin and other medicinal or restorative tablets, saccharine tablets, pills, cachous, powders, leads for propelling pencils, and other similar commodities, but is also adapted for use in connection with containers for liquid commodities. Moreover, the stopper may be produced in a larger size suitable for use in connection with bottles, jars and the like.

Furthermore, it is mainly the intention to manufacture the improved stopper by injection moulding from any appropriate moulding material included within the generic term "plastics" of which there are numerous varieties known in the art. For example, the stopper may be made of a plastic of the nitro-cellulose, cellulose acetate, phenolic, urea or casein type, known under various trade names, for application to a container made of the same material, glass or metal. Alternatively, the stopper may be made by pressure moulding. If desired, however, the stopper may be made of any other suitable material such as relatively hard

indiarubber, vulcanite, ebonite or metal. When the stopper is moulded or cast, as the case may be, it is preferably made complete with the splits or gaps in the hollow neck or plug, although, as will be readily understood, the splits or gaps may, in some cases, be made by a saw cutting or like machine operation.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A stopper for a container, comprising a head and a hollow neck or plug, said head being formed with an annular recess around and concentric with the hollow neck or plug and the latter being split or gapped suchwise as to render it radially springy, for the purposes specified.

2. A stopper for a tubular or cylindrical container, bottle, jar or the like, comprising a head and a tapered or bevelled hollow neck or plug, said head being formed with an annular recess around and concentric with the hollow neck or plug to receive, and of a width to correspond with the thickness of, the rim of the container, bottle, jar or the like, and the hollow neck or plug being split or gapped suchwise as to render it radially springy, for the purposes specified.

3. A stopper as claimed in Claim 1 or 2, wherein the hollow neck or plug is split or gapped longitudinally at two or more circumferentially spaced points.

4. A stopper as claimed in any of the preceding Claims, wherein the hollow neck or plug is gapped so as to divide it into springy sections, the gaps being of narrow form and extending from the rim of the neck or plug substantially to the juncture of the latter with the head.

5. A stopper as claimed in any of the preceding Claims, wherein the head is milled, knurled or otherwise roughened peripherally, for the purpose specified.

6. A stopper for a container which is formed and made substantially as herein described with reference to the accompanying drawing.

Dated this 8th day of May, 1941.

E. N. LEWIS & TAYLOR,  
Chartered Patent Agents,  
Berridge Street Chambers, Leicester,  
Agents for the Applicants.

Fig. 1.

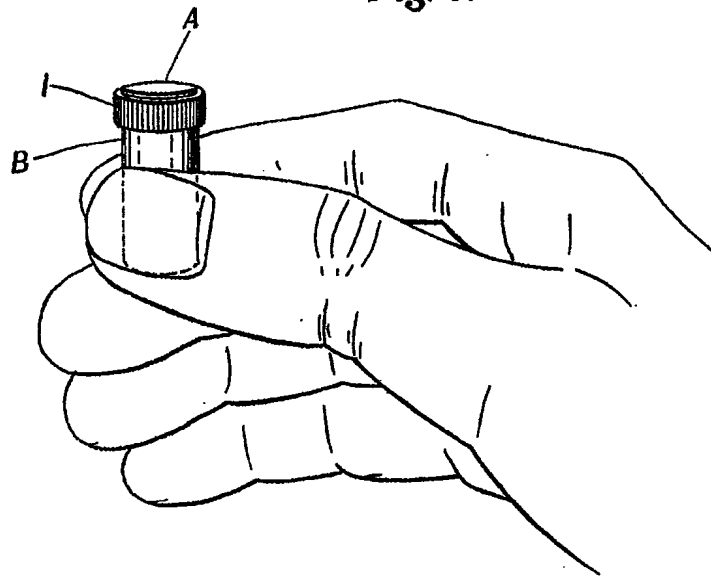


Fig. 2.

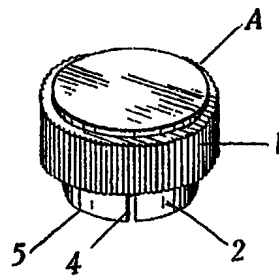


Fig. 3.

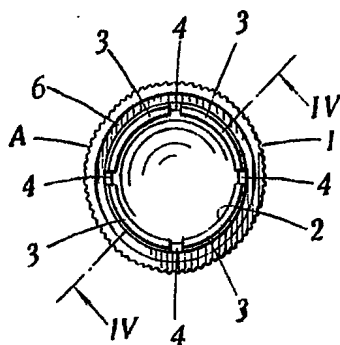


Fig. 4.

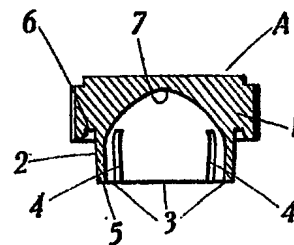


Fig. 5.

